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 (72) Inventors JOHN CARL ASICK
 and CLIFTON WESLEY HUFFNAGLE



(54) ELECTRICAL TERMINAL

(71) We, AMP INCORPORATED, a corporation organised and existing under the laws of the State of New Jersey, United States of America, of Eisenhower Boulevard, Harrisburg, Pennsylvania, United States of America, do hereby declare the invention, for which we pray that a patent may be granted to us, and the method by which it is to be performed, to be particularly described in and by the following statement:—

This invention relates to an electrical terminal, and particularly to an electrical terminal for establishing electrical connection to a flat conductor of a flat flexible cable.

Such a terminal is described in British Patent Number 1,146,807 (7379), and this known terminal has been used successfully for a number of years. However, difficulties are sometimes encountered when the cable to which the terminal is being connected has relatively thick insulation, as in the case with cables for carrying high currents.

According to this invention there is provided an electrical terminal comprising a contact portion and a connecting portion for connection to a flat conductor of a flat flexible cable, in which the connecting portion comprises a ferrule of U-shaped cross-section having a base and a pair of opposed side walls upstanding from opposite edges of the base, there being a hole in each side wall extending from the junction between the side wall and the base, and two tabs extending from the base in the same direction as the side walls, each tab being aligned with and projecting into a respective one of the holes in the side walls.

This invention will now be described by way of example, with reference to the drawings, in which:—

Figure 1 is a plan view of a metal blank from which a terminal according to the invention can be formed.

Figure 2 is a plan view of a terminal according to the invention formed from the blank of Figure 1;

Figure 3 is a side elevational view of the terminal of Figure 2;

Figure 4 is a section on the line IV-IV in Figure 3;

Figure 5 is a perspective view of the terminal of Figures 2 to 4;

Figure 6 is a perspective view of the terminal of Figures 2 to 5 connected to a cable;

Figure 7 is a section on the line VII-VII in Figure 6; and

Figure 8 is a section on the line VIII-VIII in Figure 6.

The terminal shown in the drawings is formed from a blank as shown in Figure 1, which blank is stamped from sheet metal, and comprises a contact portion 1 represented only schematically since it can be of any required form, and a connecting portion 2 for connection to a flat conductor 100 of a flat flexible cable 101 (Figures 6 to 8).

The connecting portion 2 is in the form of a ferrule of U-shaped cross-section (see Figure 4) having a base 3 and a pair of opposed side walls 4 upstanding from opposite edges of the base 3.

Each side wall 4 has two holes 5 therein, extending from the junction between the side wall 4 and the base 3.

Four tabs 6 are pushed up from the base 3 to extend in the same direction as the side walls 4, each tab 6 being aligned with and projecting into a respective one of the holes 5 in the side walls 4. This is achieved in that the lines of connection between the tabs 6 and the base 3 extend transversely of the junctions between the base 3 and the side walls 4.

Each side wall 4 is divided by a slot 7 extending inwardly from the free edge 8 of the side wall, into two axially spaced parts each having an indentation 9 extending inwardly from the free edge 8 in line with a respective one of the tabs 6, as clearly shown in Figure 3. The free edge portions of the side walls 4 on either side of each indentation 9 are chamfered to provide relatively sharp edges, as shown in Figure 4, to ease pen-

tration of the insulation of a cable by the edge 8.

For use, the terminal is positioned with the side wall 4 on either side of the conductor 100 of the cable 101, and the side walls 4 are then pushed through the insulation 102 of the cable 101 and curled inwardly such that they again pierce the insulation 102 and engage the conductor 100, this in known manner. The arrangement after such connection is shown in Figure 6.

Referring now specifically to Figures 7 and 8, during such connection the tabs 6 also pierce the insulation 102 of the cable 101 and engage the conductor 100 on the opposite side to the free edges 8 of the side walls 4. The conductor is thus trapped between the tabs 6 and the free edges 8. The conductor 100 is also forced to assume a sinuous path (see Figure 7) extending over the tabs 6 and into the associated indentations 9, thereby to provide good electrical connection and resistance to axial forces tending to pull the conductor 100 out of the connecting portion 2.

WHAT WE CLAIM IS:—

1. An electrical terminal comprising a contact portion and a connecting portion for connection to a flat conductor of a flat flexible cable, in which the connecting portion comprises a ferrule of U-shaped cross-section having a base and a pair of opposed side walls upstanding from opposite edges of the

base, there being a hole in each side wall extending from the junction between the side wall and the base, and two tabs extending from the base in the same direction as the side walls, each tab being aligned with and projecting into a respective one of the holes in the side walls.

2. A terminal as claimed in Claim 1, in which each side wall has two of said holes therein, and the base has four of said tabs extending therefrom.

3. A terminal as claimed in Claim 2, in which each side wall is divided by a slot extending inwardly from the free edge of the side wall, into two axially spaced parts each having one of said holes therein.

4. A terminal as claimed in any preceding claim, in which each side wall has an indentation extending inwardly from its free edge in line with the or each tab associated with that side wall.

5. A terminal as claimed in any preceding claim, in which the free edges of the side walls are chamfered to provide relatively sharp edges.

6. An electrical terminal substantially as hereinbefore described with reference to the drawings.

For the Applicants:
R. G. STUART-PRINCE,
Chartered Patent Agent.

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COMPLETE SPECIFICATION

2 SHEETS

This drawing is a reproduction of
the Original on a reduced scale
Sheet 1



